[0003] Furthermore, an apparatus is known which has a counter-holder to receive a tube, the tube being supported freely on the counter-holder. The tube is held during a cutting process, rotating in a defined position, by means of two manually adjustable guide rollers. A horizontal holding arrangement, on which one or more cutting tools are provided, is provided above the counter-holder. These cutting tools can be actuated individually or simultaneously, so that several sleeves of the same length can be cut at fixed and uniform spacings. A separately driven stripper runs along the counter-holder to eject the sleeves. This apparatus makes it possible for several sleeves to be cut simultaneously in one cutting process, because of the multiplicity of the arranged cutting tools. However, this machine requires a time-consuming setting of the cutting tools and increased change-around times if a cut-off length of sleeves is to be produced, different from that which is set. Moreover, the minimum cut-off length is restricted by the width of the individual cutting tools. In addition, the cut-off length cannot be changed for individual sleeves during the process of cutting one cardboard tube.

Summary of the Invention

[0004] The invention therefore has as its object to provide an apparatus which is of simple design, which can be selectively set to different cut-off lengths, and which makes possible a quick ejection of the cut tube sleeves after the cutting of the sleeves.

[0005] This object is attained according to the invention [by the features of claim 1] having a counter holder arranged to receive a tube, at least one cutting tool that is movable to a cutting position on the counter holder during a cutting process, an ejector that ejects cut-off portions of the tube, the ejector being movable relative to the counter-holder, a slide that is movable along the counter-holder, on which the at least one cutting tool and the ejector are provided, and a

guide rail 16. The distance from the initial position 23 to the ejector position 24 corresponds at least to the length of the counter-holder 13 which is available for the support of a tube 12.

[0018] The guide rail 16 has a housing in which a threaded spindle 26 is rotatably mounted. The slide 17 has a corresponding guide element which engages the threaded spindle 26. A servomotor or stepping motor 27 is provided at a drive-side end of the threaded spindle 26, and engages the threaded spindle 26 via a coupling 28.

[0019] The stepping motor 27 is selected such that, for example, a 1:1 transmission can take place from the drive shaft of the motor 27 to the threaded spindle 26, so that precise driving of the slide 17 and thus an exact travel path with respect to the cutting tool 19 can be attained.

[0020] It can alternatively be provided that a gear is arranged between a threaded spindle and a motor. It can furthermore be alternatively provided that the slide is driven to travel along the guide rail [18] 16 by means of a toothed belt, a chain, or the like.

[0021] The counter-holder 13 is fixedly or rotatably mounted to a left side of the base frame 14. At its right-hand free end, an abutment 29 is provided which is pivotably arranged on the guide rail 16 and which receives the free end of the counter-holder 13 during the cutting process. The abutment 29 is pivoted out of its holding position for the loading and unloading of the tube 12.

[0022] In Fig. 1, a unit 30 is provided on the slide 17, and has a non-rotatingly driven cutting tool 19. A unit 35 is furthermore shown which has a motor-driven cutting tool.

[0023] A mounting 31 is provided on the flange 18 of the unit 30, and receives via roller bearings 32 a cutting knife 33 which is freely rotatable. The cutting knife 33 is clamped between two seatings 34 and arranged interchangeably with respect to the mounting 31. This can be

tools and increased change-around times if a cut-off length of sleeves is to be produced, different from that which is set. Moreover, the minimum cut-off length is restricted by the width of the individual cutting tools. In addition, the cut-off length cannot be changed for individual sleeves during the process of cutting one cardboard tube.

Summary of the Invention

[0004] The invention therefore has as its object to provide an apparatus which is of simple design, which can be selectively set to different cut-off lengths, and which makes possible a quick ejection of the cut tube sleeves after the cutting of the sleeves.

[0005] This object is attained according to the invention having a counter holder arranged to receive a tube, at least one cutting tool that is movable to a cutting position on the counter holder during a cutting process, an ejector that ejects cut-off portions of the tube, the ejector being movable relative to the counter-holder, a slide that is movable along the counter-holder. on which the at least one cutting tool and the ejector are provided, and a programmable control for freely setting cut-off lengths of tubular sleeves by moving the cutting tool on the slide.

[0006] A rational processing of a tube for the production of sleeves of different lengths is made possible by the arrangement and constitution, according to the invention, of a slide which is movable relative to the counter-holder and on which both a cutting tool and an ejector are provided. After the same or different cut-off lengths of the sleeves have been cut by means of the cutting tool, the slide is located at an end position of the tube. The ejector can now be simultaneously actuated, so that a simultaneous ejection of the sleeves from the counter-holder takes place during a return travel of the slide into its initial position for a subsequent work cycle. A displaceable element engaged by the ejector when the sleeve or sleeves is/are stripped off can be automatically guided over into an initial position of the ejector by the following introduction

[0020] It can alternatively be provided that a gear is arranged between a threaded spindle and a motor. It can furthermore be alternatively provided that the slide is driven to travel along the guide rail 16 by means of a toothed belt, a chain, or the like.

[0021] The counter-holder 13 is fixedly or rotatably mounted to a left side of the base frame 14. At its right-hand free end, an abutment 29 is provided which is pivotably arranged on the guide rail 16 and which receives the free end of the counter-holder 13 during the cutting process. The abutment 29 is pivoted out of its holding position for the loading and unloading of the tube 12.

[0022] In Fig. 1, a unit 30 is provided on the slide 17, and has a non-rotatingly driven cutting tool 19. A unit 35 is furthermore shown which has a motor-driven cutting tool.

[0023] A mounting 31 is provided on the flange 18 of the unit 30, and receives via roller bearings 32 a cutting knife 33 which is freely rotatable. The cutting knife 33 is clamped between two seatings 34 and arranged interchangeably with respect to the mounting 31. This can be made possible in that one of the seatings 34 is released, or in that the mounting 31 is released, or in that the whole unit 30, and thus the flange 18, is removed from the slide 17.

[0024] Alternatively to the freely rotatable arrangement according to the unit 30, a stationary cutting knife can also be provided. For this, a bolt 36 can be inserted in a bore of the seating 34, so that the freely rotatable arrangement of the cutting knife 33 is locked.

[0025] Furthermore, the unit 35 can alternatively be provided, the cutting knife 33 being driven by a motor 37. One or more units 30 or 35, which can also be provided in combination, can be selected according to the respective application.

[0026] The cutting tool 19 can be arranged to be resiliently compliant. During the cutting process, the cutting tool 19 is moved toward the counter-holder, for example, by means of a

Attachment 3: Copies of amendments to the specification associated with pages 2 and 6 of the specification submitted on 04/03/2002. These amendments to the specification were found in the submission of 06/22/2007.